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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/801,893	03/16/2004	Gi-ho Park	5649-1159	3389

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EXAMINER

NGUYEN, THAN VINH

ART UNIT PAPER NUMBER

2187

DATE MAILED: 10/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/801,893

Applicant(s)

PARK, GI-HO

Examiner

Than Nguyen

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 July 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 and 15-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15-19 and 29-37 is/are allowed.
- 6) ☒ Claim(s) 1-13 and 20-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 7/24/06.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. This is a response to the amendment, filed 7/24/06.
2. Claims 1-13,15-37 are pending.
3. The IDS, filed 7/24/06, has been considered.
4. In response to the amendment, the previous rejections to claims 14-19,10-22, and 25 are withdrawn.
5. Applicant has amended claim 15 to include allowable subject matter indicated in the previous office action. Accordingly, claims 15 and its dependents (16-19) are allowable.
6. Claims 29-37 were previously allowed.

Response to Amendment/Arguments

7. Applicant's arguments filed 7/24/06 have been fully considered but they are not persuasive.
8. Applicant argues that Shirotori does not teach accessing the cache memory during a low clock cycle. The Examiner disagrees. Applicant claims accessing a DFS cache memory during an idle time in a single low frequency DFS clock cycle. The Examiner interprets this language to mean accessing a cache memory during a low clock cycle (when a clocked signal is low). Shirotori clearly teaches this limitation. Fig. 8/9 of Shirotori clearly shows that, when clocked signals CLK, PLS, or SIGNAL A is low, DATA is retrieved/accessed from cache memory 2 (Fig. 8-9; 6/16-60). Thus, the Examiner maintains that Shirotori teaches the claimed limitation of accessing the cache memory during a low clock cycle.

9. Applicant argues that Shirotori does not teach accessing a cache memory responsive to a miss. The Examiner disagrees. Shirotori teaches checking tag hit/miss (HIT CHECK; Fig. 8-9). Shirotori also teaches accessing mishits /misses and continuing accessing the cache memory after mishits/misses (6/37-60). Thus the Examiner maintains that Shirotori does teach accessing a cache memory responsive to a miss/mishit.
10. Applicant argues that Shirotori does not teach accessing the cache memory during an active time and a low cycle (amended claim 20). The Examiner has addressed this new limitation in the claims rejection. Shirotori also teaches accessing the cache memory during an active/high cycle (TAG accessed when CLK is high; Fig. 8-9) and when the clock cycle is low (when clocked signals CLK, PLS, or SIGNAL A is low, DATA is retrieved/accessed from cache memory 2 (Fig. 8-9; 6/16-60).
11. The rejection to the claims under Shirotori is maintained.

Claim Rejections - 35 USC § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

13. Claims 1-13, 20-28 are rejected under 35 U.S.C. 102(e) as being anticipated by Shirotori et al (US 5,920,888).

As to claim 1,2,11,20,21,26,27:

14. Shirotori teaches accessing a [DFS] cache memory during an [idle] time in a [single low frequency] clock cycle (access cache using low frequency to reduce power consumption; Fig. 8-9; 8/5-27, 6/21-30). Shirotori also teaches accessing the cache memory during an active/high cycle (TAG accessed when CLK is high; Fig. 8-9).

As to claim 3,12,22,28:

15. Shirotori teaches the idle time comprises a time interval between the completion of a high frequency DFS clock cycle and completion of a low frequency DFS cycle (Fig. 8; standby mode; 8/10-15).

As to claim 4-6,10,23-25:

16. Shirotori teaches accessing a first cache memory at a first time and second cache memory upon a miss at a second time (Fig. 8-10; accessing cache memory).

As to claim 7,13:

17. Shirotori teaches the single low frequency DFS clock cycle being a time interval between two time adjacent rising or falling DFS clock edges having no intervening clock edges (Fig. 8; 6/16-36).

As to claim 8,9:

18. Shirotori teaches the cache memory having two frequency modes (high/low access modes; Fig. 8-10; 6/20-7/5).

Allowable Subject Matter

19. Claims 15-19, and 29-37 are allowable for reasons indicated in the previous office action.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Than Nguyen whose telephone number is 571-272-4198. The examiner can normally be reached on 8am-3pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Sparks can be reached on (571) 272-4201. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Than Nguyen
Primary Examiner
Art Unit 2187